

**WHAT IS CLAIMED IS:**

1           1.     A system comprising:  
2           a private EV-DO wireless network coupled to a public EV-DO wireless network including  
3           a data location register adapted to provide private EV-DO wireless data service;  
4           a relay unit adapted to relay a corresponding call connection request signal upon the call  
5           connection request signal being received from a terminal entering the private EV-DO wireless  
6           network;  
7           a call processor adapted to generate a session information request signal with respect to the  
8           corresponding terminal upon the call connection request signal relayed from the relay unit being  
9           a first call connection request signal, and to process a call by assigning a traffic channel to the  
10          connection terminal according to the received session information upon the session information  
11          corresponding to the requested session information request signal being received; and  
12          a session information processor adapted to request the session information request signal  
13          of the corresponding terminal generated by the call processor from a public network data location  
14          register in the public EV-DO wireless network, to extract authentication information of the  
15          terminal included in the session information of the corresponding terminal received from the  
16          public network data location register, to store the received session information of the  
17          corresponding terminal in a database upon the extracted authentication information being  
18          authentication information of the terminal registered in the private EV-DO wireless network, and  
19          to provide the call processor with the corresponding session information.

1           2.     The system according to claim 1, wherein the authentication information includes  
2     an IMSI (International Mobile Station Identity).

1           3.     The system according to claim 1, wherein the session information processor is  
2     coupled to a data location register of the public EV-DO wireless network with a dedicated line.

1           4.     The system according to claim 1, wherein the session information processor  
2     provides the call processor with the session information of the corresponding terminal stored in  
3     the database upon the first call being connected to the session information processor without  
4     performing a separate terminal authentication process and without requesting the session  
5     information of the corresponding terminal from the public data location register of the public  
6     EV-DO wireless network, upon a connected call of the terminal received through the relay unit  
7     being a second or further connection call.

1           5.     The system according to claim 1, wherein the terminal includes a temporary  
2     identifier information generator adapted to add temporary identifier information to a call  
3     connection request signal transmitted to the relay unit upon a call being connected to the private  
4     EV-DO wireless network, the temporary identifier information being used to determine whether  
5     a corresponding call is a connection call to be connected to the public EV-DO wireless network  
6     or a connection call to be connected to the private EV-DO wireless network.

1           6.     The system according to claim 1, wherein the call processor includes a routing  
2     module adapted to determine whether the corresponding terminal connection call is a private  
3     EV-DO wireless network connection call or a public EV-DO wireless network connection call  
4     according to temporary identifier information included in the call connection request signal  
5     transmitted to the relay unit from the terminal, and to rout the corresponding call to one of the  
6     private EV-DO wireless network and the public EV-DO wireless network in accordance with a  
7     result of the determination.

1           7.     The system according to claim 1, further comprising a data packet service node  
2     adapted to provide a corresponding terminal with data via an Intranet in the private EV-DO  
3     wireless network through the call processor upon a traffic channel to the corresponding terminal  
4     being assigned from the call processor and the call being processed.

1           8.     A method comprising:  
2             arranging a private EV-DO wireless network including a private base station, a private  
3     control station, and a private data location register, the private EV-DO wireless network being  
4     coupled to a public EV-DO wireless network including a public data location register;  
5             transmitting a call connection request signal of a corresponding terminal to the private  
6     control station by the private base station upon a call connection request being received in the  
7     private base station from a terminal entering the private EV-DO wireless network;  
8             requesting session information of the terminal for processing a call of the corresponding

terminal to the private data location register by the private control station according to the call connection request signal transmitted from the private base station;

determining in the private data location register whether the session information requested from the private control station is registered in a database and determining that the session information of the corresponding terminal is a private EV-DO wireless network connection call and requesting the session information of the corresponding terminal to a public data location register of the public EV-DO wireless network when the session information of the corresponding terminal is not registered and receiving the session information of the corresponding terminal from the public data location register;

performing private authentication of the corresponding terminal in the private data location register using authentication information included in the session information of the received corresponding terminal and transmitting the session information of the corresponding terminal to the private control station and storing the corresponding session information in a database upon the corresponding terminal being determined to be a private registered terminal; and

assigning a traffic channel of the corresponding terminal according to the session information of the terminal transmitted from the private data location register and performing data service through the assigned channel with the private control station.

9. The method according to claim 8, wherein the terminal transmits the call connection request signal to the private control station and additionally transmits temporary identifier information used to determine whether the corresponding call is a public EV-DO wireless network

4 connection call or a private EV-DO wireless network connection call upon a call connection  
5 request signal being transmitted to the private base station.

1 10. The method according to claim 8, wherein requesting the session information of  
2 the terminal to the private data location register includes analyzing temporary identifier  
3 information included in the call connection request signal transmitted to the private base station  
4 from the terminal in the private control station and selectively routing a corresponding call  
5 connection request signal to a data location register of one of the public EV-DO wireless network  
6 and the private EV-DO wireless network.

1 11. The method according to claim 8, wherein, in receiving the session information of  
2 the corresponding terminal from the public data location register, upon the session information  
3 requested from the private control station being registered in the database, the private data location  
4 register determines that the call connection of the corresponding terminal is not the first call  
5 connection but is a second or further call connection and provides the control station with the  
6 session information of the terminal stored in the database without authentication of a separate  
7 terminal.

1 12. The method according to claim 8, wherein the private information includes an IMSI  
2 (International Mobile Station Identity).

1           13.     A method comprising:

2                 arranging a private EV-DO wireless network system coupled to a public EV-DO wireless

3     network system including a public data location register;

4                 determining whether a call connection of the corresponding terminal is a private EV-DO

5     wireless network connection call or a public EV-DO wireless network connection call upon a call

6     connection being requested from a terminal entering a private EV-DO wireless network;

7                 determining whether session information for the corresponding terminal exists in a

8     database upon a determination that the corresponding call is a private EV-DO wireless network

9     connection call;

10                requesting the session information of the terminal for performing the private authentication

11     and the call processing of the corresponding terminal to a public data location register located in

12     the public EV-DO wireless network upon a determination that the session information for the

13     corresponding terminal does not exist in the database;

14                extracting IMSI (International Mobile Station Identity) information for authenticating a

15     terminal included in the session information of the received corresponding terminal upon the

16     session information of the corresponding terminal being received from the public data location

17     register;

18                determining whether the extracted IMSI information of the terminal is IMSI information

19     of the terminal registered in the private EV-DO wireless network and performing private

20     authentication of the corresponding terminal; and

21                assigning a traffic channel of the corresponding terminal using the session information of

the corresponding terminal and performing data service to the terminal through the assigned channel upon the authentication of the terminal being completed after storing the session information of the corresponding terminal in the database.

14. The method according to claim 13, wherein determining whether the session information for the corresponding terminal exists in the database includes determining that the connection call of the corresponding terminal is a second or further connection call and assigning the traffic channel of the corresponding terminal using the session information of the corresponding terminal stored in the database without private authentication of a separate terminal upon the session information for the corresponding terminal existing in the database and performing data service to the terminal through the assigned channel.

15. A method of performing terminal authentication and call processing in a private network, the method comprising:

securing session information for processing a call from a public network data location register and storing the secured session information in a private network data location register upon a first call connection from a private network terminal and processing a call; and

further processing a call in the private network according to the session information stored in the private network data location register upon a further call connection from the private network terminal.

1           16.    The method of claim 15, further comprising coupling the public network data  
2   location register to the private network data location register via a dedicated line.

1           17.    The method of claim 16, wherein the secured session information includes an IMSI  
2   (International Mobile Station Identity).

1           18.    A system of performing terminal authentication and call processing in a private  
2   network, the system comprising:

3           a public network including a public network data location register; and

4           a private network including a private network data location register;

5           wherein the private network secures session information for processing a call from the  
6   public network data location register and stores the secured session information in the private  
7   network data location register upon a first call connection from a private network terminal and then  
8   processes a call; and

9           wherein the private network further processes a call in the private network according to the  
10   session information stored in the private network data location register upon a further call  
11   connection from the private network terminal.

1           19.    The system of claim 18, wherein the secured session information includes an IMSI  
2   (International Mobile Station Identity).



1           20.   The system of claim 19, further comprising a dedicated line adapted to couple the  
2   public network data location register to the private network data location register.